

STATE OF INDIANA

DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT



INDIANAPOLIS, 46225

105 South Meridian Street

January 5, 1987

Mr. Norman Hjersted
Conservation Chemical Company
P.O. Box 6066
Gary, IN 46406

Re: Request for Groundwater Sampling Dates
I.D. No. IND040888992

Dear Mr. Hjersted:

The Indiana Department of Environmental Management is cooperating with the U.S. Environmental Protection Agency, Region V, in carrying out provisions of the Resource Conservation and Recovery Act (RCRA), Public Law 94-580.

In reference to and in accordance with federal and state regulations (40 CFR 265.90 - 265.94, Subpart F, and IC 13-7-5-1(d)), the Office of Solid and Hazardous Waste Management has assumed responsibility for coordinating and scheduling annual groundwater split sampling and sampling inspections. In order to minimize scheduling problems for 1987, please provide in writing to this office within fifteen (15) days of receipt of this letter, tentative dates for quarterly, semi-annual, or annual groundwater sampling. Following your response, staff will contact you to finalize arrangements.

Questions and/or comments regarding this matter may be directed to Mr. Robert E. Martin of my staff at AC 317/232-8727. Thank you for your time and consideration.

Very truly yours,

Karyl K. Schmidt

Karyl K. Schmidt, Chief
Geology Section
Technical Support Branch
Solid and Hazardous Waste Management

REM/tjd

cc: Ms. Pat Vogtman, U.S. EPA, Region V

5HE-12

05 FEB 1987

Mr. William Sierks
United States Department of Justice
Land & Natural Resources Division
Environmental Enforcement Section
10th & Pennsylvania N.W.
Washington, D.C. 20530

Dear Mr. Sierks:

Attached please find Indiana Department of Environmental Management's
Notice of Deficiency to Conservation Chemical Company of Illinois.

If you have any questions feel free to call me at (312) 886-4454.

Sincerely yours,

Sally K. Swanson, Chief
Enforcement Programs Unit #2

Attachments

bcc: Jon McPhee, ORC
/Rick Hersemann, RES

5HE-12:RRS:rrs:6-8093:02/04/87:RS Disk



CONSERVATION CHEMICAL COMPANY OF ILLINOIS

5201 Johnson Drive
Suite 400
Mission, Ks. 66205
913-262-3649

MAR 19 10 52 AM '86

DIVISION OF LAND
POLLUTION CONTROL
STATE
BOARD OF HEALTH

March 10, 1986

RECEIVED

MAR 27 1986

Mr. Ralph Pickard
Technical Secretary
Environmental Management Board
State of Indiana
P.O. Box 1964
Indianapolis, Indiana 46206-1964

SOLID WASTE BRANCH
U.S. EPA, REGION V

Dear Mr. Pickard:

This will confirm oral statements made previously to Mr. Noel Anderson of your department and Ms. Ann Long, Office of Indiana Attorney General.

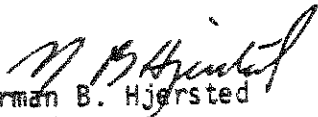
At the request of the United States Environmental Protection Agency, Region V, we have discontinued our recycling operation at our Gary, Indiana facility on or before the 20th of December, 1985. In addition, an administrative order by the U.S. EPA, Region V, received on September 30, 1985, involved most of our suppliers of by-product pickle liquor which is used in the production of Ferric Chloride. Most of these companies cut our supply of raw material off, which made continued operations untenable.

During the period to early December we only operated to reduce our inventory of pickle liquor on hand plus Chlorine on hand (no Chlorine was ordered subsequent to our receipt of the U.S. EPA, Region V complaint.).

As a matter of information, we have engaged the consulting engineering firm of ATEC Associates, Inc. to assist the company in preparing a revised Closure Plan.

Very truly yours,

CONSERVATION CHEMICAL COMPANY OF ILLINOIS


Norman B. Hjersted
President

NBH:sd

cc: Louis Rundio, Jr.--McDermott, Will & Emery
Ms. Ann Long--Attorney General's Office
Mr. Noel Anderson
Mr. Ted Warner
Mr. Dennis Zawodni

FY 1988 FACILITY STATUS SHEET

I.a. EPA ID: I1W1D1M1Y1N1X1H1Z1K1L

2.a. Date Status Sheet Submitted 12/2/87

b. Facility Name: CONSERVATION CHEM. CO., of ILLINOIS b. First Time Report Update ☒

This form only applies to facilities that have some form of land disposal. Of these facilities, complete this form for only those facilities that are not on a permit track for their land disposal.

3. Facility Ground Water Monitoring Status (Choose one)

D = 265 Detection	N = GWN Not Required
A = 265 Assessment	X = No wells but should have
W = Waiver (Hydrogeologic)	

4. GWN Activity Reported with this Submission (More than one Activity can be reported on a single Status Sheet)	Respon. Agency R=EPA S=State	Date Compliance Status Determined	Compliance Status Y=Compliance N=Non-Compl. U=Under Review	Date Report Submitted	Hazardous Waste Constituent (HWC) Flag Y=HWC in GW N=No HWC in GW
X 01 Evaluation of Installation of Well System	S	10/31/87	N	XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
X 02 Evaluation of Sampling, Analysis and Evaluation Program	S	10/31/87	N	XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
03 Notice of Significant Increase in Concentrations		XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
04 Groundwater Quality Assessment Report		XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
05 Waiver Demonstration				XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
06 GWN Records				XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX
X 07 Evaluation of Hydrogeologic Information	S	10/31/87	N	XXXXXXXXXX	XXXXXXXXXXXXXXXXXXXX

GWK Comment: FACILITY WILL BE IN COMPLIANCE IF STATE AND USEPA MODIFIED CLOSURE IS FOLLOWED

	Respon. Agency	Date Compliance Status Determined or: N = Not Evaluated X = Not Applicable	Compliance Status Y = Compliance N = Non-Compliance B = Bankruptcy
5. Financial Requirements			
C = Closure Assurance			
L = Post Closure Assurance			
S = Sudden Liability Instrument			
N = Non-Sudden Liability Instrument			
R = Corrective Action Assurance Instrument			

Financial Comment: _____

BY 1987 INVAOLVED WITH COMPLIANCE MONITORING AND ENFORCEMENT FOR

107

A. L. L. L. L.

100

**W - W - W
O - O - O**

6. TYPE OF EVALUATION CONDUCTED

BY THIS AGENCY:

PURPOSES IN BOX _____**[]**

1 - Compliance Eval., Inspection(CR) 4 - Comprehensive Cost Evaluation (CCE)

2 - Sampling Inspection 5 - Follow Up Evaluation

3 - Broad-based Review 6 - Cross Issue/Resource Investigation

7. DATE OF EVALUATION COVERED BY THIS REPORT (enter only if different from b): / /
7a. Level: Operational

Class of Violation	Violation/Problem area						
	QW/Rule	C/RC	Min. Max	N. B	QW/Rule	Min. Max	Other
I			X				
II							

! RECOMMEND ACTION:

Case No.	Name of Violator (with code)	Type (with code)	Auto Pollution Tax		Penalty		Paid by (with code)
			Scheduled	Actual	Assessed	Collected	
I	F/N	Refused to Enforce	4-14-87				

Order for	Order for
01 - Warning Letter	11 - Piled Civil Action
04 - Petition, Complaint	12 - Piled Criminal Action
05 - Final Affidavit, Order	13 - Civil Referral to AA/DAI
10 - Interim	14 - Final Judicial Order
	15 - \$1000(h) CA Initial Motion, Order
	16 - \$1000(h) CA Final Order
	17 - Civil Referral to AA/DAI
	18 - Final Judicial Order
	19 - Piled Civil Action
	20 - Piled Criminal Action
	21 - Final Affidavit, Order
	22 - Interim
	23 - \$1000(h) CA Initial Motion, Order
	24 - \$1000(h) CA Final Order

9c. STATUS OF WARELER'S COMPLIANCE WITH SCHEDULE IN ORDER: Meeting compliance schedule? Yes ☒ No ☐ (Effective Date) 7/7.

10. **Memo. Comments:** Liability insurance deficiency reflects EPA 3/86 over entire case in Round 111 - not

RH

1. EPA ID: I|N|D|C|4|0|3|8|8|9|9|2|

2. HANDLER NAME: CONSERVATION CHEMICAL CO. OF ILLINOIS

3. ADDRESS: 5500 Industrial Highway GARY, IN.

4. Data Entry: New ☒ Update ☐

5. DATE OF INITIAL EVALUATION WHICH IS THE BASIS FOR THIS REPORT: 6/18/87

5a. AGENCY RESPONSIBLE FOR EVALUATION: Put code in box [S] Choose one

E = EPA
S = State
C = Contractor/EPA

O = Other
B = Contractor/State
X = Oversight

6. TYPE OF EVALUATION COVERED BY THIS REPORT: Put code in box [7]

1 = Compliance Eval. Inspection (CEI)
2 = Sampling Inspection
3 = Record Review

4 = Comprehensive GWM Evaluation (CME)
5 = Follow Up Evaluation
11 = Case Development Inspection

7. DATE OF EVALUATION COVERED BY THIS REPORT (enter only if different from 5): / /

7a. Eval. Comments: / /

8. CLASS and VIOLATION/PROBLEM-AREA

Enter in appropriate box:
'X' if violation is found
'R' in GWM if release to be addressed by 3008(h) order is found
'Z' if other problem found
'0' if no violation found

Class of Violation	Violation/Problem-area						
	GWM/RLSE	C/PC	Fin. Res	Pt. B	Ompl. Sch	Manifest	Other
I	<u>Z</u>						
II	<u>Z</u>						

8a. Viol. Comment: / /

9. ENFORCEMENT ACTIONS:

Class	Area of Viol./Prob	Type (use code)	Date Action Taken	Compliance Dates		Penalty		Resp. Ag. (use code)
				Scheduled	Actual	Assessed	Collected	

Codes for 03 = Warning Letter
Types of 04 = Admin. Complaint
Enforcement 05 = Final Admin. Order
Actions: 10 = Informal

11 = Filed Civil Action
12 = Filed Criminal Action
15 = \$3008(h) CA Initial Admin. Order
16 = \$3008(h) CA Final Order

18 = Civil Referral to AG/DOJ
19 = Final Judicial Order

Codes for Resp Agey
E = EPA
S = State
X = EPA Oversight

9a. STATUS OF HANDLER'S COMPLIANCE WITH SCHEDULE IN ORDER: Meeting compliance schedule? Yes No Status Date / /

9b. Enforc. Comment: Enforcement Referral Forthcoming

JUL 13 1986

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

TO: Conservation Chemical Company
of Illinois RCRA Ground-Water File

FROM: Noel P. Anderson *MPA 3/1/88*
Geology Section

SUBJECT: Comprehensive Monitoring Evaluation of Conservation
Chemical Company of Illinois (IND 040888992)

DATE: February 5, 1988

THRU: Karyl K. Schmidt *KS 3-1-88*

RECEIVED
MAR 14 1988
SOLID WASTE BRANCH
U.S. EPA, REGION V

Introduction

This memo shall serve as file documentation of a Comprehensive Monitoring Evaluation (CME) of Conservation Chemical Company of Illinois (CCCI) located in Gary, Indiana, conducted on June 18, 1987. Since CCCI was undergoing a "Level B" cleanup at the time of this inspection, it was only possible to observe the facility from outside the CCCI's property gates. Several major and minor ground-water (GW) related violations were noted during this inspection and will be discussed in general in the Findings portion of this memo. Prior to the completion of this inspection report, a federal court order mandated that Indiana Department of Environmental Management, Office of Solid and Hazardous Waste Management (IDEM-OSHW) technical staff work with the United States Environmental Protection Agency (U.S. EPA) staff to write modifications to the CCCI Closure Plan (closure plan dated May 23, 1986). These modifications, if followed by CCCI, should adequately address the major violations found by this inspection. The scope of this memo shall document the following:

- a. Facility Background
- b. Historical Ground-Water - related events
- c. Regional Geology
- d. Site-Specific Geology
- e. GW Monitoring Well System Evaluation
- f. Findings of Violations
- g. Conclusions and Recommendations

Facility Background

CCCI is located in the northwest corner of the northeast corner of Section 35, Township 37 North, Range 9 West, Lake County, Indiana. The CCCI facility's U.S. EPA I.D. number is IND 040888992.

The following discussion of the CCCI facility has been extracted from ATEC Associates, Inc., May 23, 1986, Site Assessment and Closure Plan, Conservation Chemical Company of Illinois, pp. 2-3.

The CCCI site occupies a triangular parcel of approximately four acres in Gary, Indiana. The site is located at 6500 Industrial Highway and is approximately one-quarter mile southwest of where its access road joins Industrial Highway...The site is bound on the west and southeast by the Elgin, Joliet and Eastern Railroad and on the northeast by an industrial lot filled with miscellaneous soil, masonry, and scrap metal. The Gary Municipal Airport is located immediately southeast of the site.

Until December 1985, the site functioned as a chemical recycler, producing ferric chloride (iron-salt) coagulants from waste pickling liquor. CCCI conducted its ferric chloride operations from 1967 to 1975 and resumed production in 1980. Prior to 1967, the site was owned and operated by the Berry Oil Company, a petroleum oil refinery company.

Remnants of the oil refinery operations remaining on-site include a number of drums and tanks, the office/shop building, two concrete-lined pits, a distillation column, a forced draft cooling tower, and two waste disposal basins...The site contains numerous bulk tanks of various sizes which are utilized for storage purposes. Trash and refuse have been generated by various outside contractors, placed in drums, and remain on-site...

Historical GW - Related Events

The following is an outline of some of the RCRA GW related events:

August 18, 1980 - CCCI submitted to U.S. EPA a notification of hazardous waste activity and subsequently submitted a Part A Permit Application to U.S. EPA to achieve interim status as a hazardous waste treatment, storage, and disposal facility.

August 20, 1985 - The Environmental Management Board of the State of Indiana issued a Complaint, Notice of Opportunity for Hearing, and Proposed Final Order (Cause No. N-264) against CCCI for violation of the Indiana Hazardous Waste Program, IC 13-7, and 320 IAC 4. These violations were based upon an inspection conducted by Mr. Ted Warner, Division of Land Pollution Control of the Indiana State Board of Health (DLPC-ISBH) on March 25, 1985, of the CCCI facility. The Proposed Final Order included, but was not limited to, a requirement for CCCI to submit a Ground-Water Monitoring Plan to DLPC for approval that would address all surface impoundments and adhere to the requirements of 320 IAC 4-6-1 (40 CFR 265, Subpart F). If the DLPC approved the Ground-Water Monitoring Plan, then CCCI was to implement the plan as approved, and in accordance with the time frames contained therein.

April 1, 1986 - The Department of Land Pollution Control, Indiana State Board of Health, was reorganized and renamed the Indiana Department of Environmental Management, Office of Solid and Hazardous Waste Management.

May 23, 1986 - CCCI submitted to IDEM their Closure Plan to close out their surface impoundments. (Reference: ATEC Assoc., Inc., May 23, 1986; Site Assessment and Closure Plan, Conservation Chemical Company of Illinois)

Conservation Chemical Company
Page 3
February 5, 1988

July 17, 1986 - U.S. EPA and the IDEM submitted to CCCI the first completeness and preliminary technical review of CCCI's May 23, 1986, Closure Plan.

July 28, 1986 - CCCI submitted to IDEM an inadequate response to the Closure Plan review by U.S. EPA, and IDEM completed on July 17, 1986.

January 1, 1987 - The IDEM submitted to CCCI a second completeness and preliminary technical review of CCCI's May 23, 1986, Closure Plan and CCCI's July 28, 1986, responses to the first completeness and preliminary technical review of the CCCI Closure Plan.

May 8, 1987 - CCCI submitted to IDEM an inadequate response to the Closure Plan review completed by the IDEM on January 1, 1987.

August 13, 1987 - The IDEM working with the U.S. EPA completed modifications of the CCCI Closure Plan.

August 28, 1987 - CCCI submitted (via their attorney, Mr. Louis M. Rundio, Jr., of McDermott, Will, and Emery, Chicago, Illinois) to Mr. David Lamm (IDEM) their Petition for Review and Stay of Effectiveness of the August 13, 1987, modified CCCI Closure Plan.

Regional Geology

The CCCI facility is located in the Calumet Lacustrine Plain physiographic unit. The following discussion of the regional geology near the CCCI facility is extracted from: Hartke, E. J.; J. R. Hill; and M. Reshkin. 1975. Environmental Geology of Lake and Porter Counties, Indiana - An Aid to Planning, Environmental Study 8, Department of Natural Resources Geological Survey Special Report 11. Indiana Geological Survey, Bloomington, Indiana. p. 57.

Sediments of the Calumet Lacustrine Plan consist of a variety of materials, including fine lake silt and clay, paludal deposits of muck and peat, great expanses of sand beach with accompanying sand dunes, sand and fine gravel laid down as glacial outwash and as till inclusions, and clay-rich till units of varying thickness and a real distribution...

The consolidated rocks of Lake and Porter Counties include more than 4,000 feet of limestone, dolomite, sandstone, and shale of Cambrian through Devonian age, which rest on a granitic basement that is designated Precambrian. These sedimentary rocks...constitute a series of strata that are relatively flat lying, but that are gently flexed to form a saddle-like structure. This saddle, a part of the Kankakee Arch, rises between the Michigan Basin to the northeast and the Illinois Basin to the southwest...

Structural dip, or inclination of the bedrock units, is generally southeastward, although the dip is northeastward in the northeast sector of Porter County. Average dip is about 5 to 7 feet per mile.

Site Specific Geology

The ground surface at the CCCI facility is nearly flat with the ground surface elevation estimated to be 590 feet (ref. USGS topographic map - photo revision 1980, ref. datum: National Geodetic Vertical Datum of 1929). The following table identifies some of the major cultural and drainage features near the CCCI facility:

Name of the Feature	Distance and Direction from the CCCI Facility to the Feature
Grand Calumet River	4,000 feet south
U.S. Military Reservation	733 feet east
Two unnamed surface water bodies	2,800 feet north
Lake Michigan	6,000 feet north
An area of scrap metal and misc. fill material	120 feet northeast
Midco II (CERCLA)* Site	1,800 feet northeast
An area of petroleum tank bottoms	100 feet west
USX - Gary Works	5,600 feet northeast
Gary Development Landfill	2,000 feet southwest
Gary Municipal Airport	200 feet southeast
Petroleum Storage Tanks	2,600 feet west
9th Avenue Landfill	8,600 feet south

*Comprehensive Environmental Response, Compensation, and Liability Act

The surficial soils that are beneath the CCCI facility are identified by the USDA Soil Survey of Lake County, Indiana (1972) as "urban land." Urban land is described by the USDA Soil Survey as:

...mainly in the northern part of the county, is in and around communities and built-up areas. It consists of areas that have been filled with earth, cinders, basic slag, trash, or any combination of these, and that then have been smoothed over. The surface layer and subsoil have been removed or have been disturbed so much that the soil can no longer be identified. Urban land also includes those areas where sand dunes have been removed and the areas leveled.

The surficial soils that are approximately 66 feet northwest and 200 feet southeast of the CCCI facility are identified by USDA Soil Survey as the Oakville - Tawas complex, zero to six percent (0-6%) slopes. The soil complex is described by the USDA Soil Survey as consisting of:

...very poorly drained and excessively drained soils that formed in organic materials and in sandy mineral soil materials. The soils in this complex have strongly contrasting properties.

This complex is about 45 percent Oakville fine sand and 45 percent Tawas muck. The rest consists of included areas of Maumee loamy fine sand and gently sloping Oakville fine sand.

The acreage extends in the same direction as the shores of Lake Michigan and is characterized by the pattern of long, narrow, parallel ridges and sloughs. The alternating strips are 60 to 100 feet wide. The excessively drained Oakville fine sand is on the elongated ridges, and the very poorly drained Tawas muck is in the sloughs.

The major hazards on the higher elevations are droughtiness and soil blowing because the Oakville soils are low in organic-matter content, have very low available moisture capacity, and are very rapidly permeable. The major limitation in the depressions is wetness.

In about half of the acreage of the complex, the soils are stabilized by trees and grass. The rest of the acreage is grassy swamp...Where adequate drainage outlets can be established, this complex is used for urban development...

Some of the "estimated engineering properties" identified by the USDA Soil Survey for the Oakville Series, as mapped in Lake County Indiana, are as follows:

Depth from Surface (in inches)	Depth to Seasonal High Water Table (in feet)	Dominant USDA Texture	Permeability (inches/hour)	Soil pH
0 - 80	> 4	Fine sand	> 20.00	6.6 - 7.3

Some of the "estimated engineering properties" identified by the USDA Soil Survey for the Tawas Series, as mapped in Lake County Indiana, are as follows:

Depth from Surface (in inches)	Depth to Seasonal High Water Table (in feet)	Dominant USDA Texture	Permeability (inches/hour)	Soil pH
0 - 30	0 - 1	Muck	0.63 - 2.00	6.1 - 6.5
30 - 60		Fine sand	> 20.00	6.6 - 7.3

The following discussion of the CCCI facility's "Soils" and "Site Hydrogeology" has been extracted from ATEC Associates, Inc., May 23, 1986, Site Assessment and Closure Plan, Conservation Chemical Company of Illinois, pp. 6-7.

Some fill materials have been placed at the site. Surficial soils therefore consist of slag, gravel, and cinders in some places. The underlying natural soils consist primarily of silty, fine to medium sand.

This upper soil unit is part of the Atherton Formation (in Indiana) and occurs in ridged belts that roughly parallel the present Lake Michigan shore line...These ridges are readily visible on the U.S.G.S. topographic map...Narrow belts of muck or peat occur commonly between the modern and relic dunal ridges.

Beneath the dune and lacustrine sands is approximately 100 feet of pebbly, sandy, clay till containing discontinuous lenses of sand and gravel. This till extends almost to the underlying bedrock surface, upon which rests a thin basal sand and gravel interval. The contact between the till and the upper sand unit dips northward toward Lake Michigan at about 10 feet per mile...

The upper sand unit is known as the Calumet Aquifer. This aquifer is unconfined and approximately 40 feet thick. Since ground water occurs approximately 7 feet beneath the surface, the aquifer has a saturated thickness somewhat less than 40 feet. Hydraulic properties of the aquifer are as follows: Hydraulic conductivity is about 3×10^{-3} to 5×10^{-2} cm/s, transmissivity is approximately 30^{-2} cm/s, and the storage coefficient is about 0.12, characteristic of unconfined conditions...

The site lies near a suspected ground-water divide from which flow is northward toward Lake Michigan and southward toward the Grand Calumet River. Due to this fact, it is difficult to determine the actual ground-water flow direction without specific site measurements. Ecology and Environment concluded from their work performed at the site in 1984 that the ground-water flow direction is south-southwest, towards the River. They measured a hydraulic gradient of 0.003 cm/cm.

Using the measured hydraulic gradient of 0.003 cm/cm, assuming a porosity of 0.3, and hydraulic conductivity of 4×10^{-2} cm/s, the average linear seepage velocity of ground water beneath the site is calculated to be 1.7 feet per day. Due to the permeable nature of the surficial soils, the Calumet Aquifer is recharged principally by direct infiltration. The standard assumption (American Society of Civil Engineers) of about one-third infiltration and two-thirds evapotranspiration and run-off indicates about 12 inches of annual precipitation are available for ground-water recharge...

Conservation Chemical Company
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February 5, 1988

GROUND-WATER MONITORING WELL SYSTEM EVALUATION

The CCCI facility has not installed a RCRA ground-water monitoring system.

FINDINGS OF VIOLATIONS

CCCI has not implemented a RCRA ground-water monitoring program that meets the requirements of 320 IAC 4.1-20-(1-5).

CONCLUSIONS AND RECOMMENDATIONS

The CCCI facility's May 23, 1986, Closure Plan was determined to be inadequate by both the IDEM-OSHW and by the U.S. EPA - Region V. These inadequacies were initially addressed by the U.S. EPA - Region V and the IDEM by sending CCCI a Notice of Deficiency (NOD) of their Closure Plan. CCCI submitted their response to the NOD and in turn the IDEM responded with a second NOD related to CCCI's response. CCCI then submitted an inadequate response to IDEM's second NOD. The IDEM working with U.S. EPA - Region V then wrote "modifications" to CCCI's Closure Plan. These modifications were designed to include, but not be limited to, an adequate RCRA ground-water monitoring program. Some of these modifications have been appealed by CCCI. Due to the potential resolution of inadequacies through the Closure Plan, an enforcement action referral at this time will not be made.

NPA/db

cc: Mr. John Hayworth
✓ Mr. Bernie Orenstein, U.S. EPA, Region V

KS 12-2-87

draft

To: Conservation Chemical Company
of Illinois RCRA Groundwater File

Thru: Karyl K. Schmidt
Rita R. Boje

From: Noel P. Anderson
Indiana Dept. of Env. Mgmt.-
Office of Solid and Hazardous Waste
Geology Section (IDEM-OSHWM)

Nov.05, 1987

Subject: Comprehensive^N Monitoring Evaluation of Conservation
Chemical Company of Illinois (IND 040888992)

Introduction

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- b. Historical Groundwater (GW) - related events
- c. Regional Geology
- d. Site-Specific Geology

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- f. Findings of violations
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monitoring plan then CCCI was to implement the plan as approved and in accordance with the time frames contained therein.

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Mr. David Lamm (IDEM) their Petition for Review and Stay of Effectiveness of the August 13, 1987 modified CCCI Closure Plan.

Regional Geology

The CCCI facility is located in the Calumet Lacustrine Plain physiographic unit. The following discussion of the regional geology near the ~~Mazon Metale~~^{CCCI} facility is extracted from: Hartke E. J., J.R. Hill, and M. Reshkin. 1975. Environmental Geology of Lake and Porter Counties, Indiana - An Aid to Planning, Environmental Study 8, Department of Natural Resources Geological Survey Special Report 11. Indiana Geological Survey, Bloomington, IN. 57 p.

"Sediments of the Calumet Lacustrine Plain consist of a variety of materials, including fine lake silt and clay, paludal deposits of muck and peat, great expanses of sand beach with accompanying sand dunes, sand and fine gravel laid down as glacial outwash and as till inclusions, and clay-rich till units of varying thickness and areal distribution...

The consolidated rocks of Lake and Porter Counties include more than 4000 feet of limestone, dolomite, sandstone, and shale of Cambrian through Devonian age, which rest on a granitic basement that is designated Precambrian. These sedimentary rocks ... constitute a series of strata that are relatively flat lying but that are gently flexed to form a saddlelike structure. This saddle, a part of the Kankakee Arch, rises between the Michigan Basin to ^{the} northeast and the Illinois Basin to the southwest ...

Structural dip, or inclination of the bedrock units, is generally southeastward, although the dip is northeastward in the northeast sector of Porter County. Average dip is about 5 to 7 feet per mile."

Site Specific Geology

The ground surface at the CCCI facility is nearly flat with the ground surface elevation estimated to be 590 feet (ref. USGS topographic map - photo revision 1980, ref. datum: National Geodetic Vertical Datum of 1929). The following table identifies some of the major cultural and drainage features near the CCCI facility:

Name of the Feature	Distance and direction from the CCCI Facility to the feature
Grand Calumet River	4000 feet South
US Military Reservation	733 feet East
Two unnamed surface water bodies	2800 feet North
Lake Michigan	6000 feet North
An area of scrap metal and misc. fill material	120 feet Northeast
Midco II (CERCLA) Site	1800 feet Northeast
An area of Petroleum Tank Bottoms	100 feet West
USX - Gary Works	5600 feet Northeast

Distance and direction from the CCCI *BAKER* ✓

<u>Name of the Feature</u>	<u>Facility to the feature</u>
Gary Development	2000 feet Southwest
Landfill	
Gary Municipal	200 feet Southeast
Airport	
Petroleum Storage	2600 feet West
Tanks	
9th Avenue Landfill	8600 feet South

The surficial soils that are beneath the CCCI facility are identified by the USDA Soil Survey of Lake County, Indiana (1972) as Urban Land. Urban land is described by the USDA Soil ~~Soil~~ Survey as :

"...mainly in the northern part of the county, is in and around communities and built-up areas. It consists of areas that have been filled with earth, cinders, basic slag, trash, or any combination of these, and that then have been smoothed over. The surface layer and subsoil have been removed or have been disturbed so much that the soil can no longer be identified. Urban land also includes those areas where sand dunes have been removed and the areas leveled."

The surficial soils that are approximately 66 feet northwest and 200 feet southeast of the CCCI facility are identified by USDA Soil Survey as the Oakville - Tawas complex, 0 to 6 percent slopes. The soil complex is described by the USDA Soil Survey as consisting of:

"...very poorly drained and excessively drained soils that formed in organic materials and in sandy mineral soil


materials. The soils in this complex have strongly contrasting properties.

This complex is about 45 percent Oakville fine sand and 45 percent Tawas muck. The rest consists of included areas of Maumee loamy fine sand and gently sloping Oakville fine sand.

The acreage extends in the same direction as the shores of Lake Michigan and is characterized by the pattern of long, narrow, parallel ridges and sloughs. The alternating strips are 60 to 100 feet wide. The excessively drained Oakville fine sand is on the elongated ridges, and the very poorly drained Tawas muck is in the sloughs.

The major hazards on the higher elevations are droughtiness and soil blowing because the Oakville soils are low in organic - matter content, have very low available moisture capacity, and are very rapidly permeable. The major limitation in the depressions is wetness.

In about half of the acreage of the complex, the soils are stabilized by trees and grass. The rest of the acreage is grassy swamp...Where adequate drainage outlets can be established, this complex is used for urban development..."

Some of the "estimated engineering properties" identified by the  USDA Soil Survey for the Oakville Series as mapped in Lake County Indiana are as follows:

Depth from Surface(in inches)	Depth to Seasonal high water table (in feet)	Dominant USDA Texture	Permeability (in./hr)	Soil pH
-------------------------------------	--	--------------------------	--------------------------	------------

0 - 80	> 4	Fine sand	> 20.00	6.6 -
--------	-----	-----------	---------	-------

7.3

Some of the "estimated engineering properties" identified by ^{the} USDA Soil Survey for the Tawas Series as mapped in Lake County Indiana are as follows: ✓

Depth from Surface(in inches)	Depth to Seasonal high water table (in feet)	Dominant USDA Texture	Permeability (in./hr)	Soil pH
-------------------------------------	--	--------------------------	--------------------------	------------

0 - 30	0 - 1	Muck	0.63 - 2.00	6.1 - 6.5
--------	-------	------	----------------	--------------

30 - 60		Fine sand	> 20.0	6.6 - 7.3
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The following discussion of the CCCI facility's "Soils" and "Site Hydrogeology" has been extracted from Atec Associates, Inc. May 23, 1986. Site Assessment and Closure Plan. Conservation Chemical Company of Illinois. pp 6 and 7.

"Some fill materials have been placed at the site. Surficial soils therefore consist of slag, gravel, and cinders in some places. The underlying natural soils consist primarily of silty, fine to medium sand.

This upper soil unit is part of the Atherton Formation (in Indiana) and occurs in ridged belts that roughly parallel the present Lake Michigan shore line...These ridges are readily visible ^o in the U.S.G.S. topographic map...Narrow belts of muck or peat occur commonly between the modern and

relic dunal ridges.

Beneath the dune and lacustrine sands is approximately 100 feet of pebbly, sandy, clay till containing discontinuous lenses of sand and gravel. This till extends almost to the underlying bedrock surface, upon which rests a thin basal sand and gravel interval. The contact between the till and the upper sand unit dips northward toward Lake Michigan at about 10 feet per mile...

The upper sand unit is known as the Calumet Aquifer. This aquifer is unconfined and approximately 40 feet thick.

Since ground water occurs approximately 7 feet beneath the surface, the aquifer has a saturated thickness somewhat less than 40 feet. Hydraulic properties of the aquifer are as follows: Hydraulic conductivity is about 3×10^{-3} to 5×10^{-2} cm/s, transmissivity is approximately 30 cm²/s, and the storage coefficient is about 0.12, characteristic of unconfined conditions... ✓ 11 = move up

The site lies near a suspected ground water divide from which flow is northward toward Lake Michigan and southward toward the Grand Calumet River. Due to this fact, it is difficult to determine the actual ground water flow direction without specific site measurements. Ecology & Environmental concluded from their work performed at the site in 1984 that the ground water flow direction is south-southwest, towards the river. They measured a hydraulic gradient of 0.003 cm/cm. ✓

Using the measured hydraulic gradient of 0.003 cm/cm, assuming a porosity of 0.3, and hydraulic conductivity of 4

move up 1/2 line
x 10⁻² cm/s, the average linear seepage velocity of ground water beneath the site is calculated to be 1.1 feet per day. Due to the permeable nature of the surficial soils, the Calumet Aquifer is recharged principally by direct infiltration. The standard assumption (American Society of Civil Engineers) of about one third infiltration and two thirds evapotranspiration and run-off, indicates about 12 inches of annual precipitation is available for ground water recharge..."

GROUNDWATER MONITORING WELL SYSTEM EVALUATION

The CCCI facility has not installed a RCRA groundwater monitoring system.

FINDINGS OF VIOLATIONS

CCCI has not implemented a RCRA groundwater monitoring program that meets the requirements of 320 IAC 4.1-20-(1-5)..

CONCLUSIONS AND RECOMMENDATIONS

The CCCI facility's May 23, 1986 Closure Plan was determined to be inadequate by both the Indiana Department of Environmental Management - Office of Solid and Hazardous Waste and by the United States Environmental Protection Agency - Region V. These inadequacies were initially addressed by the US EPA - Region V and the IDEM by sending CCCI a Notice of Deficiency (NOD) of their Closure Plan. CCCI submitted their response to the NOD and

in turn the IDEM responded with a second NOD related to CCCI's response. CCCI then submitted an inadequate response to IDEM's second NOD. The IDEM working with US EPA - Region V then wrote "modifications" to CCCI's Closure Plan. These modifications were designed to include, but not be limited to, an adequate RCRA groundwater monitoring program. Some of these modifications have been appealed by CCCI. Due to the ~~mod~~ inclusion of inadequacies ^(potential resolution) through the Closure Plan, an enforcement action referral at this time will not be made. ✓

APPENDIX A-1

FACILITY INSPECTION FORM FOR COMPLIANCE WITH INTERIM STATUS STANDARDS COVERING GROUND-WATER MONITORING

Company Name: CONSERVATION CHEMICAL
COMPANY OF ILLINOIS
(CCCI); EPA I.D. Number: IND 040888992

Company Address: 6500 INDUSTRIAL HIGHWAY; Inspector's Name: NOEL P.

Company Contact/Official: GARY, IN
NORMAN HERTSD; Branch/Organization: ANDERSON
INDIANA DEPT. OF
ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE
MANAGEMENT-GEOLOGY
SECTION.

Title: PRESIDENT, CONSERVATION CHEM. CO. OF
ILLINOIS; Date of Inspection: JUNE 18, 1987

Type of facility: (check appropriately)	<u>Yes</u>	<u>No</u>	<u>Unknown</u>	<u>Waived</u>
a) surface impoundment	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) landfill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) land treatment facility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) disposal waste pile*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Ground-Water Monitoring Program

- Was the ground-water monitoring program reviewed prior to site visit?
If "No",

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>Site</u> <u>Inspection</u> <u>Not Completed</u> <u>Due to</u> <u>"Level B"</u> <u>Cleanup at</u> <u>the site on</u> <u>the Inspection</u> <u>Date</u>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	
- Has a ground-water monitoring program (capable of determining the facility's impact on the quality of groundwater in the uppermost aquifer underlying the facility) been implemented? 265.90(a)

<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	-------------------------------------	--------------------------	--------------------------

*Listed separate from landfill for convenience of identification.

A RCRA GW Monitoring System has not been installed at this site.

Unless stated otherwise the source of information for this inspection is: Alec Assoc., Inc. May 23, 1986, Site Assessment AND CLOSURE PLAN, CONSERVATION CHEMICAL COMPANY OF ILLINOIS, GARY, IN.

	Yes	No	Unknown	Waived
3. Has at least one monitoring well been installed in the uppermost aquifer hydraulically upgradient from the limit of the waste management area? 265.91(a)(1)	_____	✓	_____	_____
a) Are ground-water samples from the uppermost aquifer, representative of background ground-water quality and not affected by the facility (as ensured by proper well number, locations and depths?)	_____	✓	_____	_____
4. Have at least three monitoring wells been installed hydraulically downgradient at the limit of the waste handling or management area? 265.91(a)(2)	_____	✓	_____	_____
a) Do well number, locations and depths ensure prompt detection of any statistically significant amounts of HW or HW constituents that migrate from the waste management area to the uppermost aquifer?	_____	✓	_____	_____
5. Have the locations of the waste management areas been verified to conform with information in the ground-water program?	_____	✓	_____	_____
a) If the facility contains multiple waste management components, is each component adequately monitored?	_____	✓	_____	_____
6. Do the numbers, locations, and depths of the ground-water monitoring wells agree with the data in the ground-water monitoring system program? If "No", explain discrepancies.	_____	✓	_____	_____
7. Well completion details. 265.91(c)				
a) Are wells properly cased?	_____	✓	_____	_____
b) Are wells screened (perforated) and packed where necessary to enable sampling at appropriate depths?	_____	✓	_____	_____
c) Are annular spaces properly sealed to prevent contamination of ground-water?	_____	✓	_____	_____

Not all the basins are graphically displayed in the May 23, 1986 Closure Plan (i.e. at a minimum the basins that are not labeled include the T-22 Basin and the Off-Site Basin).

A RCRA GW Monitoring System has not been installed at this site.

	Yes	No	Unknown
8. Has a ground-water sampling and analysis plan been developed? 265.92(a)	<input checked="" type="checkbox"/>		
a) Has it been followed?		<input checked="" type="checkbox"/>	<i>RERA GW Sampling Has not Been Initiated.</i>
b) Is the plan kept at the facility?			
c) Does the plan include procedures and techniques for:			
1) Sample collection?	<input checked="" type="checkbox"/>		<i>But Inadequate</i>
2) Sample preservation?		<input checked="" type="checkbox"/>	
3) Sample shipment?		<input checked="" type="checkbox"/>	
4) Analytical procedures?		<input checked="" type="checkbox"/>	<i>May 23, 1986, P 29 Closure Plan states that</i>
5) Chain of custody control?		<input checked="" type="checkbox"/>	<i>"...Analytical procedures must be performed in accordance with U.S. EPA methods. Specific analytical methods and quality assurance measures will be required from the analytical laboratory (yet to be selected) and submitted under separate cover."</i>
9. Are the required parameters in ground-water samples being tested quarterly for the first year? 265.92(b) and 265.92 (c)(1)		<input checked="" type="checkbox"/>	
a) Are the ground-water samples analyzed for the following:			
1) Parameters characterizing the suitability of the ground-water as a drinking water supply? 265.92(b)(1)			
2) Parameters establishing ground-water quality? 265.92(b)(2)			
3) Parameters used as indicators of ground-water contamination? 265.92(b)(3)			
(i) For each indicator parameter are at least four replicate measurements obtained at each upgradient well for each sample obtained during the first year of monitoring? 265.92(c)(2)			
(ii) Are provisions made to calculate the initial background arithmetic mean and variance of the respective parameter concentrations or values obtained from the upgradient well(s) during the first year? 265.92(c)(2)			
b) For facilities which have completed first year ground-water sampling and analysis requirements:			
1) Have samples been obtained and analyzed for the ground-water quality parameters at least annually? 265.92(d)(1)			
2) Have samples been obtained and analyzed for the indicators of ground-water contamination at least semi-annually? 265.92(d)(2)			

A RERA GW Monitoring System has not been installed at this site.

	Yes	No	Unknown
c) Were ground-water surface elevations determined at each monitoring well each time a sample was taken? 265.92(e)		<input checked="" type="checkbox"/>	
d) Were the ground-water surface elevations evaluated annually to determine whether the monitoring wells are properly placed? 265.93(f)			
e) If it was determined that modification of the number, location or depth of monitoring wells was necessary, was the system brought into compliance with 265.91(a)? 265.93(f)		<input checked="" type="checkbox"/>	
10. Has an outline of a ground-water quality assessment program been prepared? 265.93(a)*		<input checked="" type="checkbox"/>	
a) Does it describe a program capable of determining:			
1) Whether hazardous waste or hazardous waste constituents have entered the ground water?			
2) The rate and extent of migration of hazardous waste or hazardous waste constituents in ground water?			
3) Concentrations of hazardous waste or hazardous waste constituents in ground water?		<input checked="" type="checkbox"/>	
b) After the first year of monitoring, have at least four replicate measurements of each indicator parameter been obtained for samples taken for each well? 265.93(b)		<input checked="" type="checkbox"/>	
1) Were the results compared with the initial background means from the upgradient well(s) determined during the first year?			
(i) Was each well considered individually?			
(ii) Was the Student's t-test used (at the 0.01 level of significance)?			
2) Was a significant increase (or pH decrease as well) found in the:			
(i) Upgradient wells			
(ii) Downgradient wells		<input checked="" type="checkbox"/>	
If "Yes", Compliance Checklist A-2 must also be completed.			

The May 23, 1986 Closure Plan^(CP) states (p. 26) that a "Students T-Test" failure (HOCFR 265 App. IV) will occur prior to closure, therefore the facility^(through CP) has described a "Ground Water Quality Assessment Plan" (p. 26²⁹ of the May 23, 1986 CP)

A RCRA GW Monitoring System has not been installed at this site.

	<u>Yes</u>	<u>No</u>	<u>Unknown</u>
11. Have records been kept of analyses for parameters in 265.92(c) and (d)? 265.94(a)(1)	_____	<input checked="" type="checkbox"/>	
12. Have records been kept of ground-water surface elevations taken at the time of sampling for each well? 265.94(a)(1)	_____		
13. Have records been kept of required elevations in 265.93(b)? 265.94(a)(1)	_____		
14. Have the following been submitted to the Regional Administrator 265.94(a)(2) :*			
a) Initial background concentrations of parameters listed in 265.92(b) within 15 days after completing each quarterly analysis required during the first year?	_____		
b) For each well, have any parameters whose concentrations or values have exceeded the maximum contaminant levels allowed in drinking water supplies been separately identified?	_____		
c) Annual reports including:			
1) Concentrations or values of parameters used as indicators of ground-water contamination for each well along with required evaluations under 265.93(b)?	_____		
2) Any significant differences from initial background values in up-gradient wells separately identified?	_____		
3) Results of the evaluation of ground-water surface elevations?	_____	<input checked="" type="checkbox"/>	

*EPA will be proposing (Spring 1982) to replace this reporting requirement with an exception reporting system where reports will be submitted only where maximum contaminant levels or significant changes in the contamination indicators or other parameters are observed. EPA has delayed compliance stage for 14 a) above until August 1, 1982 (Federal Register, February 23, 1982, p.7841-7842) to be coupled with exception reporting in the interim.

A RCRA GW Monitoring System has not been installed at this site

APPENDIX B

GROUND-WATER MONITORING AND ALTERNATE SYSTEM
TECHNICAL INFORMATION FORM

1.0 Background Data:

Company Name: CONSERVATION CHEMICAL
COMPANY OF ILLINOIS; EPA I.D.#: IND 040888992

Company Address: 6500 INDUSTRIAL HIGHWAY
GARY, IN

Inspector's Name: NOEL P. ANDERSON; Date: JUNE 18, 1987
IDEM - OSHWM GEOLOGY SEC.

1.1 Type of facility (check appropriately):

- 1.1.1 surface impoundment ☒
1.1.2 landfill ☐
1.1.3 land treatment facility ☐
1.1.4 disposal waste pile ☐

1.2 Has a ground-water monitoring system been established?

(Y/N) N

1.2.1 Is a ground-water quality assessment program outlined or proposed?

(Y/N) Y

If Yes,

1.2.2 Was it reviewed prior to the site visit?

(Y/N) N

1.3 Has a ground-water quality assessment program been implemented or proposed at the site?

(Y/N) Y

If yes, Appendix C, Ground-Water Quality Assessment Program Technical Information Form must be utilized also.

→ May 23, 1986 Closure Plan p. 26-29.

2.0 Regional/Facility Map(s)

2.1 Is a regional map of the area, with the facility delineated, included?

(Y/N) Y

If yes,

2.1.1 What is the origin and scale of the map? Original Atec Assoc. Inc.
Griffith, IN. May 23, 1986. Regional Geology Unconsolidated
Deposits, Figure 3, Scale: 1:250,000

2.1.2 Is the surficial geology adequately illustrated?

(Y/N) Y - for a Regional Map.

Also consult U.S.D.A.-S.C.S.
Soil Survey of Lake County, Indiana

2.1.3 Are there any significant topographic or surficial features evident?

(Y/N) Y

If yes, describe Parallel Alternating beach ridges and depressional sloughs

2.1.4 Are there any streams, rivers, lakes, or wet lands near the facility?

(Y/N) Y

If yes, indicate approximate distances from the facility

Lake Michigan = Approx. 6,600 Ft. North
Grand Calumet River = Approx. 4,000 Ft. South
Wetlands = Approx. 1800 Ft. Northeast

2.1.5 Are there any discharging or recharging wells near the facility?

(Y/N) Y

If yes, indicate approximate distances from the facility.

According to May 23, 1986 Closure Plan (p. 8) there are 39 water supply wells within a 3 mile radius of CCCI however no specific information was supplied regarding these wells.

2.2 Is a regional hydrogeologic map of the area included? (This information may be shown on 2.1)

(Y/N) Y

If yes:

2.2.1 Are major areas of recharge/dischARGE shown?

(Y/N) N

If yes, describe. _____

2.2.2 Is the regional ground-water flow direction indicated?

(Y/N) N

2.2.3 Are the potentiometric contours logical?

(Y/N) ?

If not, explain. Unknown, original field data not supplied with map

2.3 Is a facility plot plan included?

(Y/N) Y

2.3.1 Are facility components (landfill areas, impoundments, etc.) shown?

(Y/N) N

2.3.2 Are any seeps, springs, streams, ponds, or wetlands indicated?

(Y/N) N

→ The "T-22 Basin" and "Off-Site Basin" are not delineated and labeled

- 2.3.3 Are the locations of any monitoring wells, soil borings, or test pits shown? (Y/N) Y
- 2.3.4 Is the facility a multi-component facility? (Y/N) Y
- If yes: *Multiple-Surface impoundments*
- 2.3.4.1 Are individual components adequately monitored? (Y/N) N
- 2.3.4.2 Is a Waste Management Area delineated? (Y/N) N
- 2.4 Is a site water table (potentiometric) contour map included? (Y/N) Y
- If yes,
- 2.4.1 Do the potentiometric contours appear logical based on topography and presented data? (Consult water level data) (Y/N) ?²
- 2.4.2 Are groundwater flowlines indicated? (Y/N) Y
- 2.4.3 Are static water levels shown? - *Yes on contour lines but not for each well* (Y/N) N
- 2.2.4 May hydraulic gradients be estimated? (Y/N) Y
- 2.4.5 Is at least one monitoring well located hydraulically upgradient of the waste management area(s)? (Y/N) ?²
- 2.4.6 Are at least three monitoring wells located hydraulically downgradient of the waste management area(s)? (Y/N) N
- 2.4.7 By their location, do the upgradient wells appear capable of providing representative ambient groundwater quality data? (Y/N) ?²
- If no, explain. _____
- _____
- _____

A RCRA GW Monitoring System has not been installed at this site.

A hydrogeologic study must be conducted to determine the answer to this question

3.0 Soil Boring/Test Pit Details

3.1 Were soil borings/test pits made under the supervision of a qualified professional?

(Y/N) ?

If yes,

Qualifications of personnel is
not known

3.1.1 Indicate the individual(s) and affiliation(s): Norm ^{Canonie} (Driller)
Ron St. John ^{Canonie} (Geologist); Canonie is
the Drilling Firm

3.1.2 Indicate the drilling/excavating contractor, if known Canonie

3.2 If soil borings/test pits were made, indicate the method(s) of drilling/excavating:

- Auger (hollow or solid stem) ✓
- Mud rotary _____
- Air rotary _____
- Reverse rotary _____
- Cable tool _____
- Jetting _____
- Other, including excavation (explain) _____

3.3 List the number of soil borings/test pits made at the site

3.3.1 Pre-existing 6

3.3.2 For RCRA compliance NONE

3.4 Indicate borehole diameters and depths (if different diameters and depths use TABLE B-1).

3.4.1 Diameter: _____

3.4.2 Depth: _____

3.5 Were lithologic samples collected during drilling?

(Y/N) UNKNOWN

If yes,

3.5.1 How were samples obtained? (Check method(s))

- Split spoon _____
- Shelby tube, or similar _____
- Rock coring _____
- Ditch sampling _____
- Other (explain) _____

Some details of these wells are in the May 23, 1986 Closure Plan under "Field Data/Boring Logs"

INSPECTORS NAME

[illegible]

3.5.2 At what interval were samples collected? UNKNOWN IF
SAMPLES WERE COLLECTED

3.5.3 Were the deposits or rock units penetrated described? (boring logs, etc.) (Y/N) Y

3.6 If test pits were excavated at the site, describe procedures. NO TEST PITS WERE EXCAVATED

4.0 Well Completion Detail

4.1 Were the wells installed under the supervision of a qualified professional? (Y/N) Y*

If yes:

4.1.1 Indicate the individual and affiliation, if known

4.1.2 Indicate the well construction contractor, if known

4.2 List the number of wells at the site

4.2.1 Pre-existing

4.2.2 For RCRA Compliance

6 - INSTALLED BY CANONEE
(DRILLING FIRM)
OCT. 7-11, 1983
NONE

4.3 Well construction information (fill out INFORMATION TABLE B-2)

4.3.1 If PVC well screen or casing is used, are joints (couplings):

- Glued on
- Screwed on

*
*

4.3.2 Are well screens sand/gravel packed? (Y/N) *

* A RCRA GW Monitoring System has not been installed at this site.

INFORMATION TABLE B-2

DATE

FACILITY

EPA ID

Inspector's Name

WELL NO.							
GROUND ELEVATION (IN FEET)							
TOTAL DEPTH (IN FEET)							
WELL CASING	TYPE MATERIAL						
	DIAMETER (IN INCHES)						
	LENGTH (IN FEET)						
	STICK-UP (IN FEET)						
	TOP ELEVATION (IN FEET)						
	BOTTOM ELEVATION (IN FEET)						
WELL SCREEN	DEPTH TOP/BOTTOM (IN FEET)						
	TYPE MATERIAL						
	DIAMETER (IN INCHES)						
	LENGTH (IN FEET)						
	SLOT SIZE (IN INCHES)						
	TOP ELEVATION (IN FEET)						
	BOTTOM ELEVATION (IN FEET)						
OPEN HOLE OR SAND/GRAVEL PACK	DEPTH TOP/BOTTOM (IN FEET)						
	DIAMETER (IN INCHES)						
	LENGTH (IN FEET)						
	TOP ELEVATION (IN FEET)						
	BOTTOM ELEVATION (IN FEET)						

NOTES:

4.3.3 Are annular spaces sealed?

(Y/N) *

If yes, describe:

- bentonite slurry _____
- Cement grout _____
- Other (explain) _____

- Thicknesses of seals _____

4.3.4 If "open hole" wells, are the cased portions sealed in place? (Y/N) *

If yes, describe how: _____

4.3.5 Are there cement surface seals?

(Y/N) *

If yes,

- How thick? _____

4.3.6 Are the wells capped?

(Y/N) *

If yes,

- Do they lock? _____

(Y/N) *

4.3.7 Are protective standpipes cemented in place?

(Y/N) *

4.3.8 Were wells developed?

(Y/N) *

If yes, check appropriate method(s):

- Air lift pumping _____
- Pumping and surging _____
- Jetting _____
- Bailing _____
- Other (explain) _____

5.0 Aquifer Characterization

5.1 Has the extent of the uppermost saturated zone (aquifer) in the facility area been defined?

(Y/N) *

If yes,

5.1.1 Are soil boring/test pit logs included?

(Y/N) *

5.1.2 Are geologic cross-sections included?

(Y/N) *

* ARORA GW Monitoring System has not been installed

5.2 Is there evidence of confining (low permeability) layers beneath the site?

(Y/N) Y

If yes,

5.2.1 Is the areal extent and continuity indicated?

(Y/N) N

5.2.2 Is there any potential for saturated conditions (perched water) to occur above the uppermost aquifer? (Y/N) Y

The alternating strips of long, narrow, parallel ridges of fine sand and sloughs of muck. If yes, give details: partially characterize the "natural" soils adjacent to the C&D Railway (USDA-SCS, 1972, Lake County Soil Survey). At a minimum, seasonal high water table conditions can occur within the mucky sloughs and/or within "man made" surface sediments of relatively low hydraulic conductivity.

a) Should or is this perched zone being monitored?

(Y/N) ?*

Explain The on site hydro-geologic conditions need to be assessed before this question can be answered.

5.2.3 What is the lithology and texture of the uppermost saturated zone (aquifer)?

Dune and lacustrine silty, fine to medium sands beneath ^{surface} fill materials (slag, gravel and cinders) according to the May 23, 1986 Closure Plan, p. 6.

5.2.4 What is the saturated thickness, if indicated?

Approx. 33 feet according to May 23, 1986 Closure Plan, p. 7.

5.3 Were static water levels measured?

(Y/N) Y - But only once on Oct. 18, 1983 (Ref. May 23, 1986 Closure Plan, Field Data, Boring Logs)

If yes,

5.3.1 How were the water levels measured (check method(s)).

- Electric water sounder
- Wetted tape
- Air line
- Other (explain)

UNKNOWN

5.3.2 Do fluctuations in static water levels occur?

(Y/N) ?*

If yes,

5.3.2.1 Are they accounted for (e.g. seasonal, tidal, etc.)?

(Y/N) ?*

If yes, describe:

* A detailed hydrogeologic study has not been conducted

5.3.2.2 Do the water level fluctuations alter the general ground-water gradients and flow directions?

(Y/N) ?*

If yes,

5.3.2.3 Will the effectiveness of the wells to detect contaminants be reduced?

(Y/N) ?*

Explain _____

5.3.2.4 Based on water level data, do any head differentials occur that may indicate a vertical flow component in the saturated zone?

(Y/N) ?*

If yes, explain _____

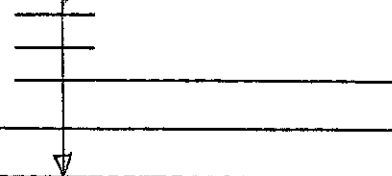
5.4 Have aquifer hydraulic properties been determined?

(Y/N) N*

If yes,

5.4.1 Indicate method(s):

- Pumping tests
- Falling/constant head tests
- Laboratory tests (explain)



5.4.2 If determined, what are the values for:

- Transmissivity
- Storage coefficient
- Leakage
- Permeability
- Porosity
- Specific capacity

30 cm²/s

0.12

3×10^{-3} to 5×10^{-2} cm/s

0.3

Assumed values: Ref. May 23, 1986. Closure Plan p. 7.

5.4.3 In cases where several tests were undertaken, were discrepancies in the results evident?

(Y/N) ?*

If yes, explain _____

5.4.4 Were horizontal ground-water flow velocities determined?

(Y/N) Y

If yes, indicate rate of movement

1.1 ft / DAY

* A hydrogeologic study has not been conducted at this site.

6.0 Well Performance

6.1 Are the monitoring wells screened in the uppermost aquifer? (Y/N) *

6.1.1 Is the full saturated thickness screened? (Y/N)

6.1.2 For single completions, are the intake areas in the:
(check appropriate levels)

- Upper portion of the aquifer
- Middle of the aquifer
- Lower portion of the aquifer

6.1.3 For well clusters, are the intake areas open to different portions of the aquifer? (Y/N)

6.1.4 Do the intake levels of the monitoring wells appear to be justified due to possible contaminant density and groundwater flow velocity? (Y/N)

7.0 Ground-Water Quality Sampling

7.1 Is a sampling (groundwater quality) program and schedule included? (Y/N) Y

REF. May 23, 1986 Closure Plan p. 27-29.

7.2 Are sample collection field procedures clearly outlined? (Y/N) N

7.2.1 How are samples obtained: (check method(s)) (Proposed in May 23, 1986 Closure Plan p. 27)

- Air lift pump
- Submersible pump
- Positive displacement pump
- Centrifugal pump
- Peristaltic or other suction-lift pump
- Bailer
- Other (describe)

✓ Teflon or 316 Stainless Steel

7.2.2 Are all wells sampled with the ^{YES} same equipment and procedures? (Y/N) N

If no, explain For "quick" recharging wells 4 to 6 well volumes will be evacuated prior to sampling. For "slow" recharging wells the wells will be evacuated to dryness prior to sampling. If a sample at a given depth is desired the bailer will be raised and lowered a "number of times" at the depth to be sampled.

7.2.3 Are adequate provisions included to clean equipment after sampling to prevent cross-contamination between wells? (Y/N) N

* A RERA GW Monitoring System has not been installed at this site.

7.2.4 Are organic constituents to be sampled?

(Y/N) Y

If yes,

7.2.4.1 Are samples collected with equipment to minimize absorption and volatilization?

(Y/N) Y

If yes,

Describe equipment Bottom filling boiler constructed of either teflon or 316 stainless steel

8.0 Sample Preservation and Handling

8.1 Have appropriate sample preservation and preparation procedures been followed (filtration and preservation where appropriate)?

(Y/N) ?*

8.2 Are samples refrigerated?

Dissolved metals are the only parameters that are specifically specified to be cooled to 4°C prior to shipment.

(Y/N) ?

8.3 Are EPA recommended sample holding period requirements adhered to? → NOT SPECIFIED

(Y/N) ?

8.4 Are suitable container types used? → NOT SPECIFIED

(Y/N) ?

8.5 Are provisions made to store and ship samples under cold conditions (ice packs, etc.)? - *only specifically for dissolved metals*

(Y/N) ✓

8.6 Is a chain of custody control procedure clearly defined?

(Y/N) ✓

8.7 Is a specific chain of custody form illustrated?

(Y/N) ✓

If yes,

8.7.1 Will this form provide an accurate record of sample possession from the moment the sample is taken until the time it is analyzed?

(Y/N) ?

9.0 Sample Analysis and Record Keeping

9.1 Is sample analysis performed by a qualified laboratory?

(Y/N) ?

Indicate lab Lab not selected according to May 23, 1986 Closure Plan.

9.2 Are analytical methods described in the records?

(Y/N) ✓

9.2.1 Are analytical methods acceptable to EPA?

(Y/N) ?

9.3 Are the required drinking water suitability parameters tested for?

(Y/N) ✓

9.4 Are the required groundwater quality parameters tested for?

(Y/N) Y

* A RCRA GW monitoring system has not been installed at this site

9.5 Are the required groundwater contamination indicator parameters tested for?

(Y/N) Y - proposed

9.6 Are any analytical parameters determined in the field?

(Y/N) ?

Identify:

NOT SPECIFIED →

- pH
- Temperature
- Specific conductance
- Other (describe)

9.7 Is a plan included to record information about each sample collected during the groundwater monitoring program?

(Y/N) N

9.7.1 Are field activity logs included?

(Y/N) N

9.7.2 Are laboratory results included?

(Y/N) N

9.7.3 Are field procedures recorded?

(Y/N) N

9.7.4 Are field parameter determinations included?

(Y/N) N

9.7.5 Are the names and affiliation of the field personnel included?

(Y/N) N

9.8 Are statistical analyses planned or shown for all water quality results where necessary?

(Y/N) Y if asmt doesn't show contamination

9.8.1 Is an analysis program set-up which adheres to EPA guidelines?

(Y/N) N

9.8.2 Is Student's t-test utilized?

(Y/N) N

If other evaluation procedure used, identify _____

9.8.3 Are provisions made for submitting analysis reports to the Regional Administrator?

(Y/N) Y

10.0 Site Verification

** Site Inspection was not completed due to "Level B" cleanup at the site on the inspection date*

10.1 Plot Plan indicating the locations of various facility components, ground-water monitoring wells, and surface waters?

(Y/N) *

10.1.1 Is the plot plan used for the inspection the same as in the monitoring program plan documentation?

(Y/N) *

If not, explain _____

The May 23, 1986 Closure Plan Assumptions (p. 26) that a t-test statistical evaluation (i.e., Hockersley, 92) of indicators of GW contamination will indicate the contamination there fore an Assessment Plan is proposed according to occur. If the small list of site specific "site specific" results do not show contamination an interim "interim" indicator program was not ideal. However the specific indicator program was not ideal.

10.1.2 Are all of the components of the facility identified during the inspection addressed in the monitoring program documentation? (Y/N) *

If not, explain _____

10.1.3 Are there any streams, lakes or wetlands on or adjacent to the site? (Y/N) *

If yes, indicate distances from waste management areas _____

10.1.4 Are there any signs of water quality degradation evident in the surface water bodies? (Y/N) *

If yes, explain _____

10.1.5 Is there any indication of distressed or dead vegetation on or adjacent to the site? (Y/N) *

If yes, explain _____

10.1.6 Are there any significant topographic or surficial features on or near the site (e.g., recharge or discharge areas)? (Y/N) *

If yes, explain _____

10.1.7 Are the monitor well locations and numbers in agreement with the monitoring program documentation? (Y/N) *

If no, explain _____

10.1.7.1 Were locations and elevations of the monitor wells surveyed into some known datum? (Y/N) *

If not, explain _____

* Site inspection was not completed due to "Level B" cleanup at the site on the inspection date

10.1.7.2 Were the wells sounded to determine total depth below the surface? (Y/N) *

If not, explain _____

10.1.7.3 Were discrepancies in total depth greater than two feet apparent in any well? (Y/N) *

If yes, explain _____

10.1.8 Was ground water encountered in all monitoring wells? (Y/N) *

If not, indicate which well(s) were dry _____

10.1.9 Were water level elevations measured during the site visit? (Y/N) *

If yes, indicate well number and water level elevation _____

If not, explain _____

* Site inspection was not completed due to "Level B" cleanup at the site on the inspection date.

APPENDIX A-2

AND

APPENDIX - C

GROUND-WATER QUALITY ASSESSMENT PROGRAM
INFORMATION FORM

Company Name: Conservation Chem. Co., of Elkhart, IN Date: June 18, 1987

Inspector's Name: Noel P. Anderson

The May 23, 1986 Closure Plan states that a "Student's T-test statistical evaluation" (i.e. 40 CFR 265.93) of indicators of GW Contamination will "indicate" contamination. Therefore CCCI proposes to initiate an "interim status groundwater monitoring program" simultaneous with their proposed "assessment program". If the assessment program determines that hazardous waste or hazardous waste constituents have not entered the groundwater then the "indicator program" will continue. However neither the indicator program or the assessment program has been started at the time of this inspection.